CLAIMS (with indication of amended or new):

21. (New) An apparatus for manufacturing a multi-layer material from webs of paper comprising:

a forming station including a forming mechanism operative to produce an array of outwardly projecting cells on a first side of a first paper web;

a gluing station including a glue application mechanism operative to apply glue to the peaks of the outwardly projecting cells on the first side of the first web;

a two-layer laminating station including a pressure-feeding mechanism operative to press a surface of a second paper web onto the glued peaks on the first side of the first paper web; and

a receiving station operative to receive a laminated web exiting from the two-layer laminating station.

22. (New) An apparatus according to claim 21, wherein the receiving station is comprised of:

a first cutting station including a cutting mechanism operative to longitudinally slit a laminated web exiting from the two-layer laminating station;

a second cutting station including a cutting mechanism operative to transversely cut the slit web exiting the first cutting station; and

a stacking station including a stacking mechanism operative to stack the multi-layer material exiting from the second cutting station.

23. (New) An apparatus according to claim 21, wherein:

the forming mechanism is operative to produce an array of further cells projecting from a second opposite side of the first paper web; and

the apparatus further comprises:

a second gluing station including a glue application mechanism operative to receive a laminated web exiting the two-layer laminating station, and to apply glue to the peaks of the cells on the second side of the first web;

a three-layer laminating station including a pressure-feeding mechanism operative to press a surface of a third paper web onto the glued peaks on the second side of the first paper web, and to deliver the resulting three-layer web to the receiving station.

24. (New) An apparatus according to claim 21, wherein the forming mechanism is comprised of

a cylinder having an array of cavities on the surface thereof, and a plurality of internal passages communicating at one end with the cavities, and connectable at the other end to a vacuum source,

the cylinder being rotatable and positioned to engage the first side the first web and to permit portions of the first web to be drawn into the cavities by a vacuum in the passages to form the array of cells projecting from the first side of the first web.

25. (New) An apparatus according to claim 21, wherein the forming mechanism is comprised ofa first rotatable cylinder positioned to engage the first side of the first paper web, and having a plurality of cavities formed on the surface thereof; and

a second rotatable cylinder positioned to engage the second side of the first web and having an array of projections on the surface thereof which are penetrable into the cavities on the surface of the first cylinder, the cylinders being operative as they rotate to deform a paper web passing therebetween into the cavities on the first cylinder to form an array of cells projecting from the first side of the paper web.

26. (New) An apparatus according to claim 25, wherein the first cylinder further includes a plurality of internal passages communicating at one end with the cavities, and connectable at the other end to a vacuum source.

27. (New) An apparatus according to claim 26, wherein the cavities are characterized by a curved cross-section, and are laid out in a staggered arrangement on the surface of the first cylinder.

28. (New) An apparatus according to claim 26, further including a mechanism for applying heat to the first and second cylinders.

29. (New) An apparatus according to claim 21, wherein the forming mechanism is comprised of a first and a second rotatable cylinder respectively positioned to engage the first side, and a second opposite side of the first paper web,

the cylinders each having a plurality of complementary forming regions on the surfaces thereof,

each forming region on the first cylinder having a projection that penetrates into a cavity in an opposed forming region on the second cylinder as the cylinders rotate, and a cavity that receives a projection on an opposed forming region on the second cylinder as the cylinders rotate,

the cylinders being operative as they rotate to deform a paper web passing therebetween into the respective cavities in the forming regions of the first and second cylinders to form arrays of inverted cells on the first and second sides of the paper web.

30. (New) An apparatus according to claim 29, wherein the cavities in the forming regions are laid out in a staggered arrangement on the surfaces of the cylinders.

31. (New) An apparatus according to claim 29, further including a mechanism for applying heat to the first and second cylinders.

32. (New) An apparatus according to claim 29, wherein the first cylinder further includes a plurality of internal passages communicating at one end with the cavities, and connectable at the other end to a vacuum source.

33. (New) A multi-layer material comprising:

a first layer of paper material having an array of cells thereon, the outer walls of which are formed by a first side of the first paper layer, and inner walls of which are formed by a second opposite side of the first paper layer; and

a second paper layer attached to peaks of the outer cell walls on the first paper layer.

34. (New) A material according to claim 33, wherein the first and second layers and attached together by an intervening layer of adhesive material.

35. (New) A material according to claim 33, wherein the cells have curved cross-sections, and are arranged in a staggered array.

36. (New) A material according to claim 33, wherein

the first layer of paper material is formed into a further array of cells, the outer walls of which are formed by the second side of the first paper layer; and the inner walls of which are formed by the first side of the first paper layer and further comprising:

a third paper layer attached to peaks of the outer cell walls on the further array of cells.

37. (New) A material according to claim 36, wherein that the cells in the two arrays are in alternating relationship with each other.

38. A material according to claim 37, wherein the first and third layers and attached together by an intervening layer of adhesive material.

39. (New) A method of manufacturing a multi-layered paper material comprising the steps of:

forming an array of outwardly projecting cells on a first side of a first paper web;

applying an adhesive material to the peaks of the outwardly projecting cells on the first side of the first web; and

laminating a second paper web onto the glued peaks on the first side of the first paper web.

40. (New) A method according to claim 39, further including the steps of:

slitting the laminated web lengthwise; and

cutting the slit web transversely to the first cutting direction to form individual sheets of multi-layer material.

41. (New) A method according to claim 39, wherein the first array of cells is formed by the steps of:

forcing the first side of the first paper web into contact with a surface of a rotating cylinder having an array of cavities on the surface thereof; and

drawing the web into the cavities as the cylinder rotates by applying a vacuum through a plurality of internal passages communicating with the cavities.

42. (New) A method according to claim 39, wherein the first array of cells is formed by the steps of:

forcing the first side of the first paper web into contact with a surface of a first rotating cylinder having an array of cavities on the surface thereof; and

forcing the second side of the first paper web into contact with a surface of a second rotating cylinder having an array of projections on the surface thereof, which are penetrable into the cavities on the surface of the first cylinder.

43. (New) A method according to claim 42, further including the step of drawing the web into the cavities as the cylinders rotate by applying a vacuum through plurality of internal passages in the first cylinder which communicate with the cavities.

44. (New) A method according to claim 42, further including the step of applying heat to the first and second cylinders.

45. (New) A method according to claim 39, further including the steps of:

forming a second array of outwardly projecting cells on a second opposite side of the first web;

applying a second layer of adhesive to the peaks of the second array of cells; and

laminating a third paper web onto the glued peaks on the second array of cells.

46. (New) A method according to claim 45, wherein the step of forming the first and second arrays of cells comprises the steps of:

engaging the first side of the first paper web into contact with a plurality of forming regions on a surface of a first rotating cylinder;

engaging the second side of the first paper web into contact with a plurality of forming regions on a surface of a second rotating cylinder,

causing projections on the forming regions on the first cylinder to penetrate into cavities in opposed forming regions on the second cylinder as the cylinders rotate, thereby forcing the second side of the first paper web into the cavities on the second cylinder; and

causing projections on the forming regions on the second cylinder to penetrate into cavities in opposed forming regions on the first cylinder as the cylinders rotate, thereby forcing the first side of the first paper web into the cavities on the first cylinder.

47. (New) A method according to claim 46, wherein the cavities in the forming regions are laid out in a staggered arrangement on the surfaces of the cylinders.

48. (New) A method according to claim 46, further including the step of applying heat to the first and second cylinders.

49. (New) A method according to claim 46, further including the step of applying a vacuum to the cavities on the first cylinder through a plurality of internal passages communicating at one end with the cavities, and at the other end with a vacuum source.